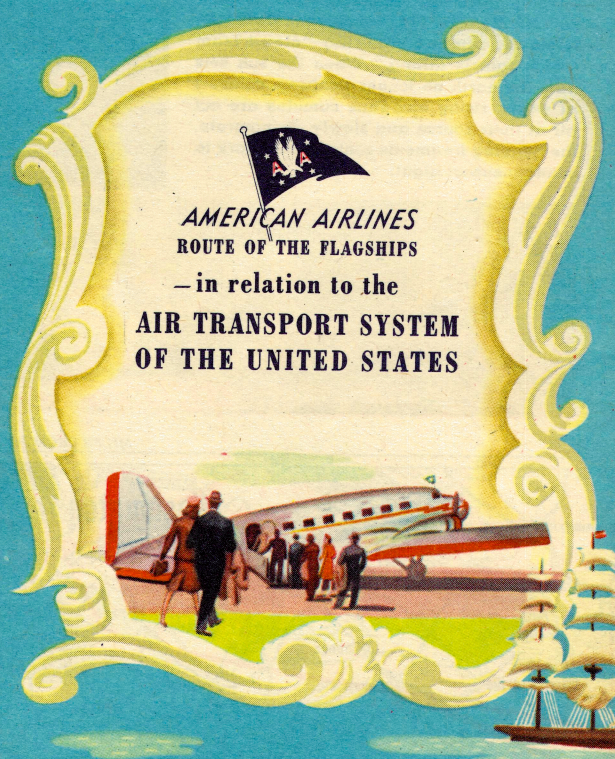
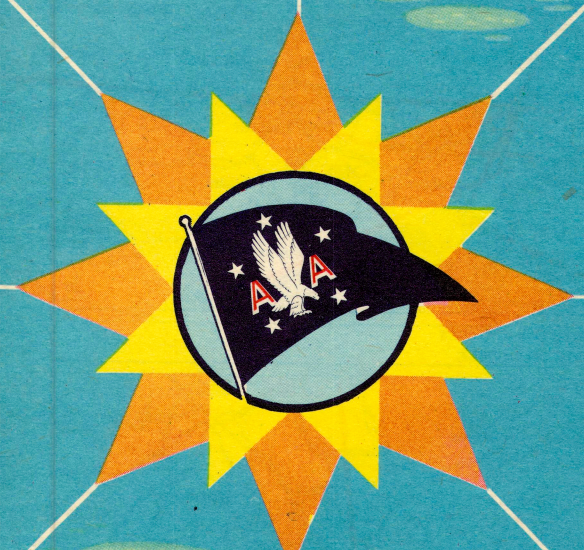


# American Airlines



AMERICAN AIRLINES  
—in relation to the  
AIR TRANSPORT SYSTEM  
OF THE UNITED STATES

# AMERICAN Airlines SYSTEM MAP



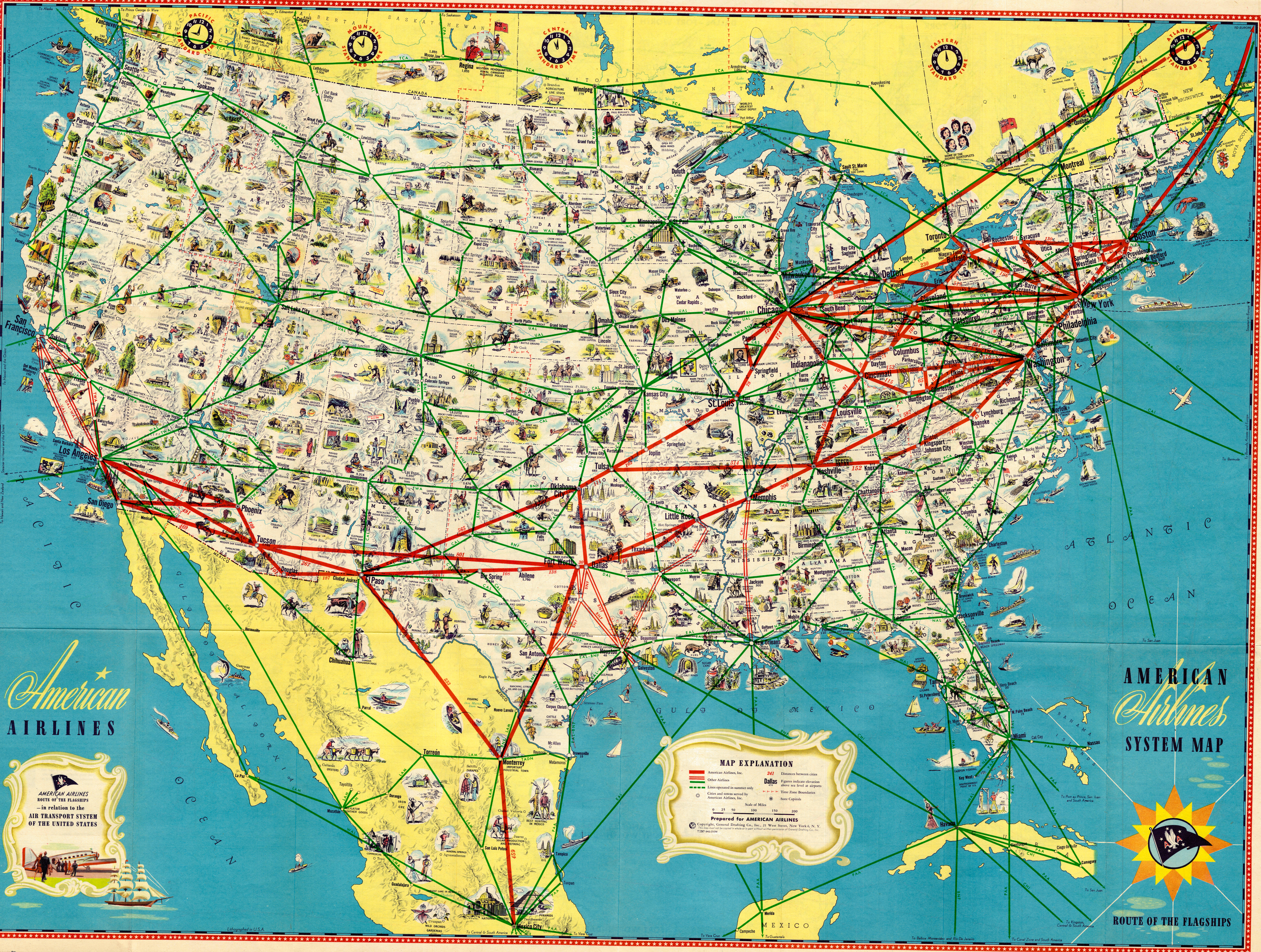
ROUTE OF THE FLAGSHIPS

## MAP EXPLANATION

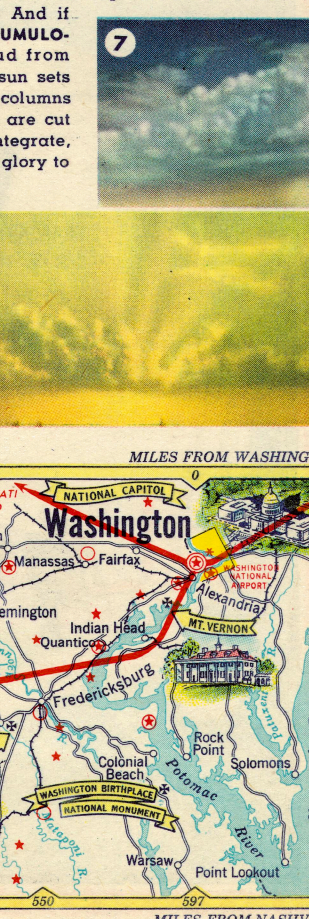
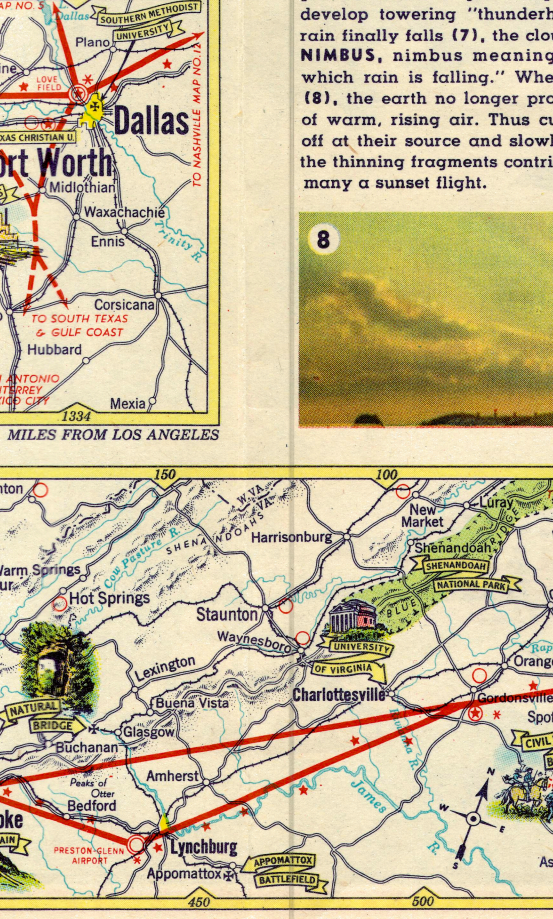
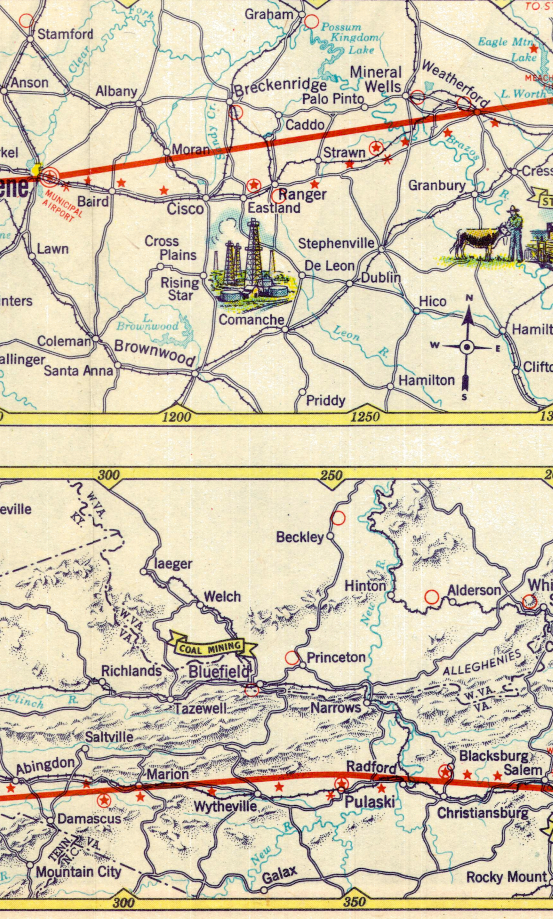
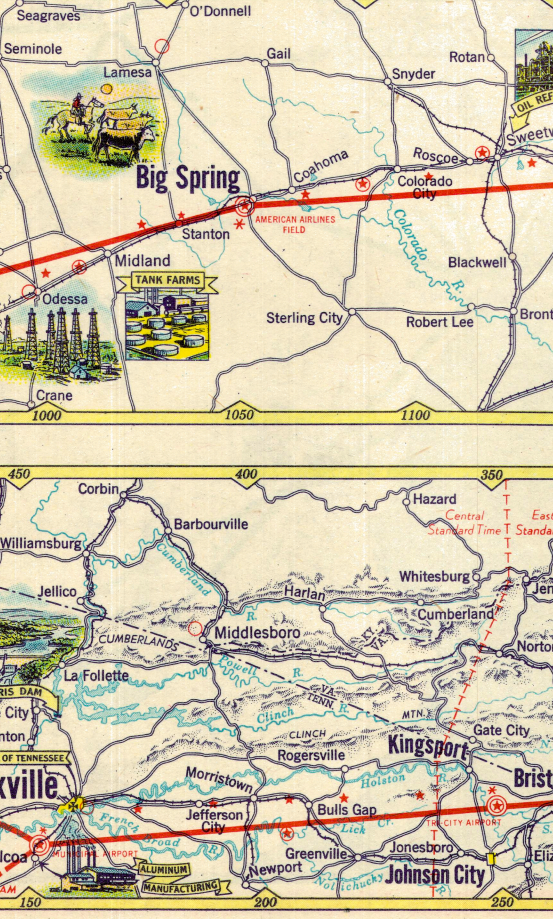
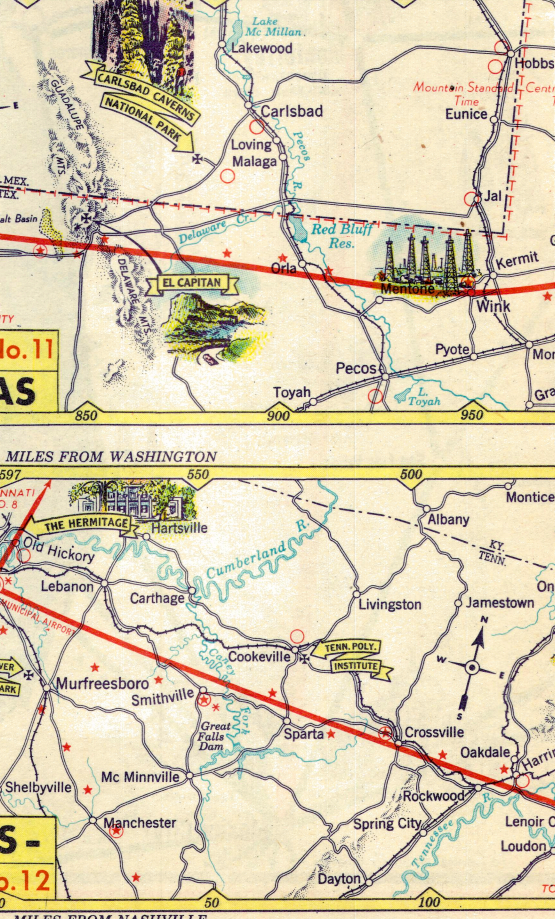
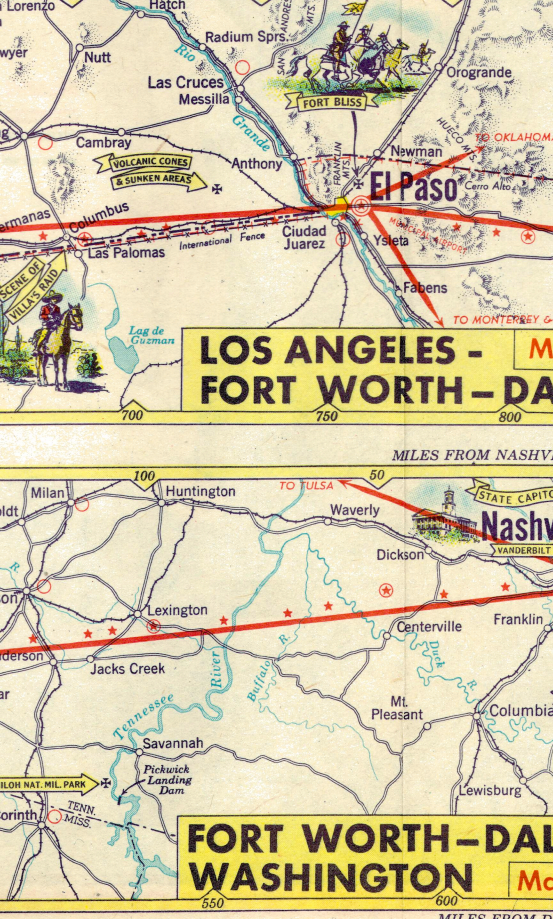
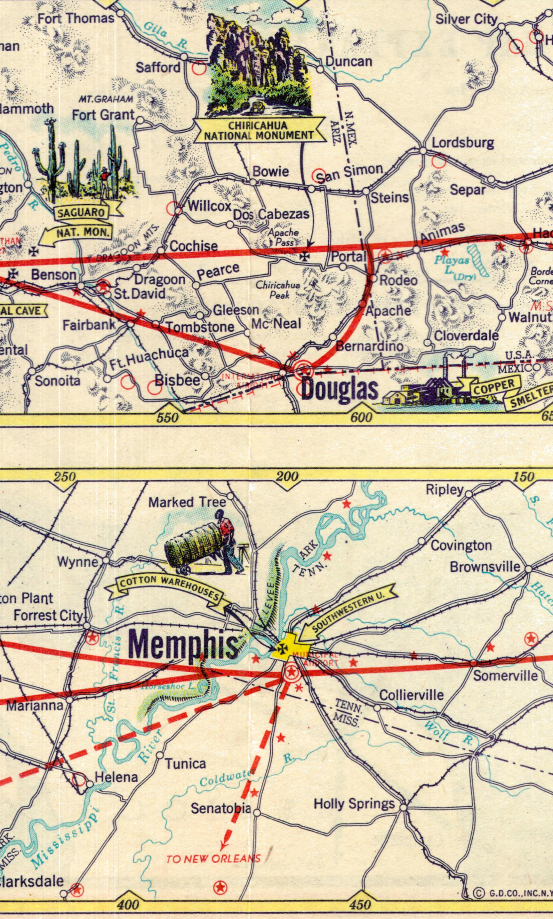
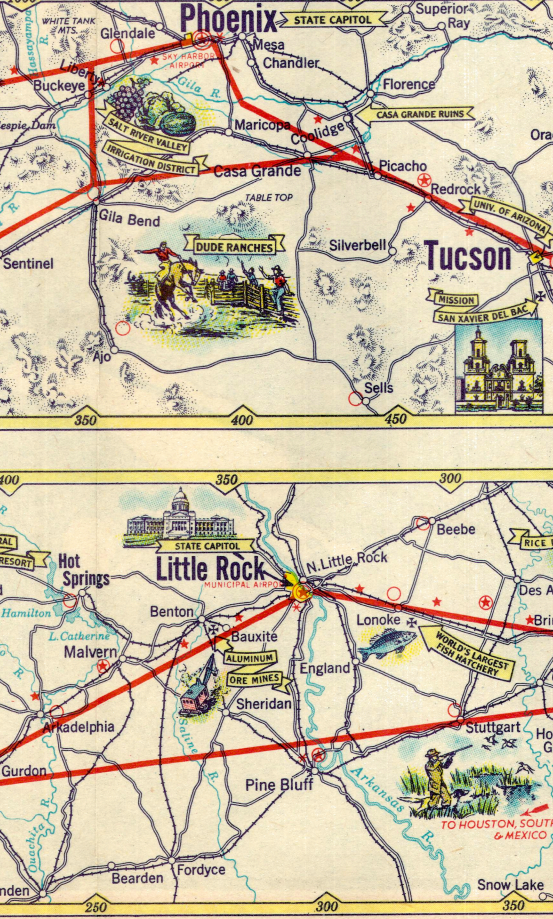
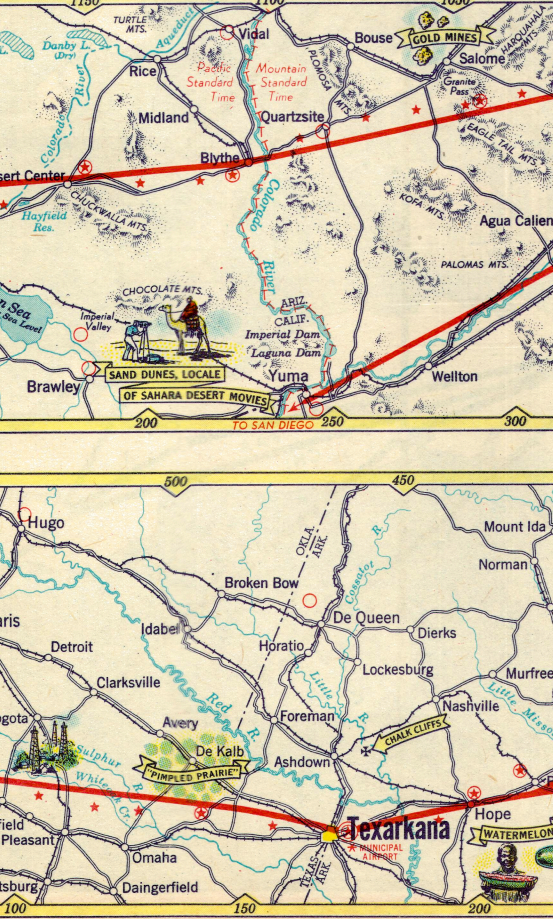
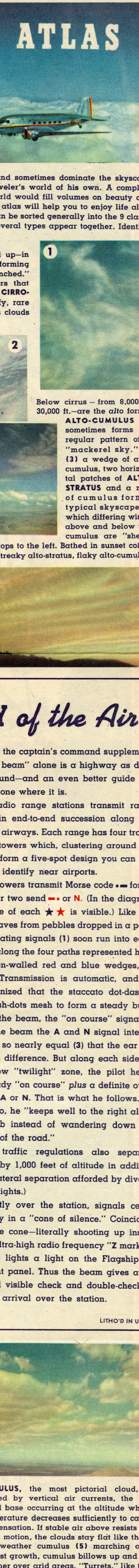
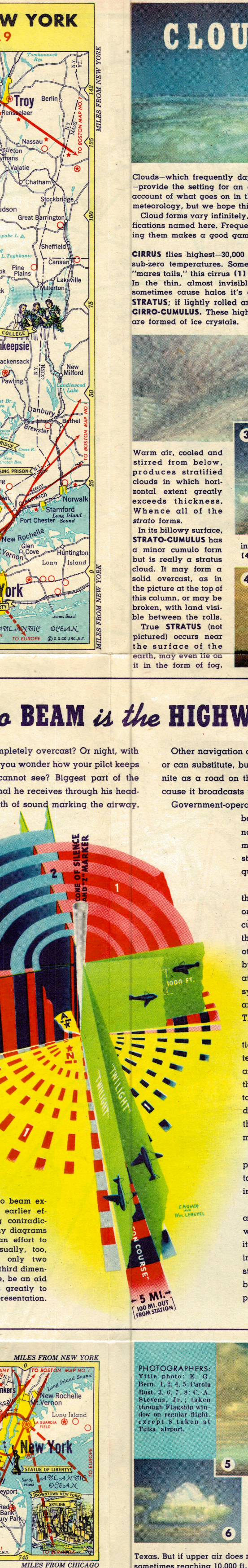
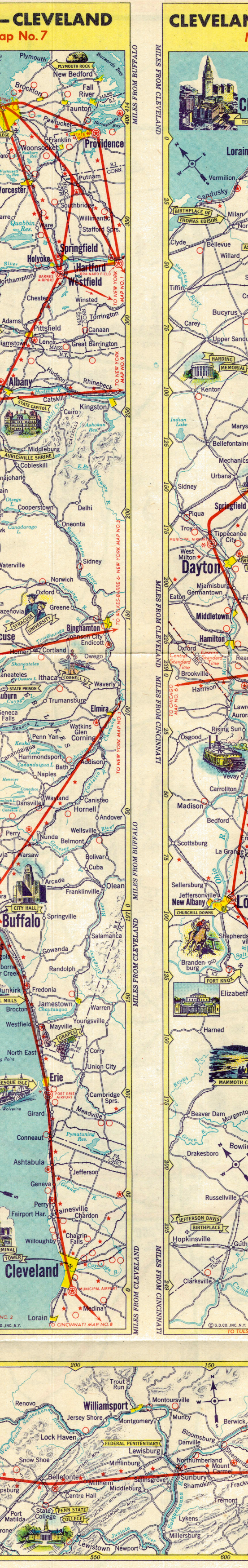
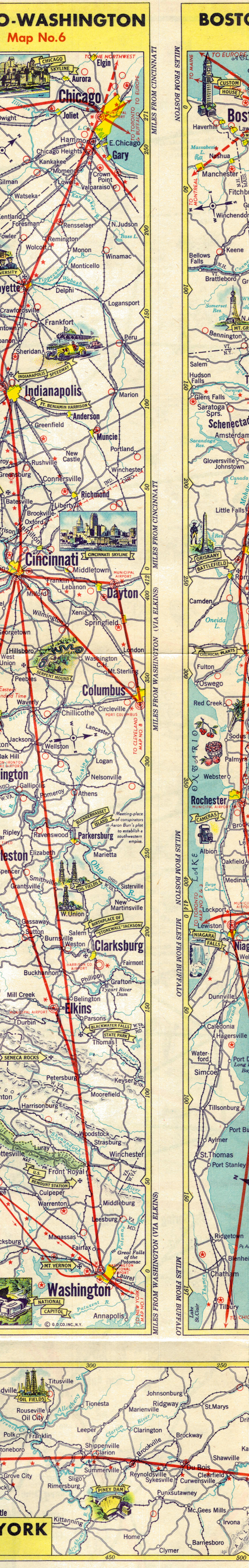
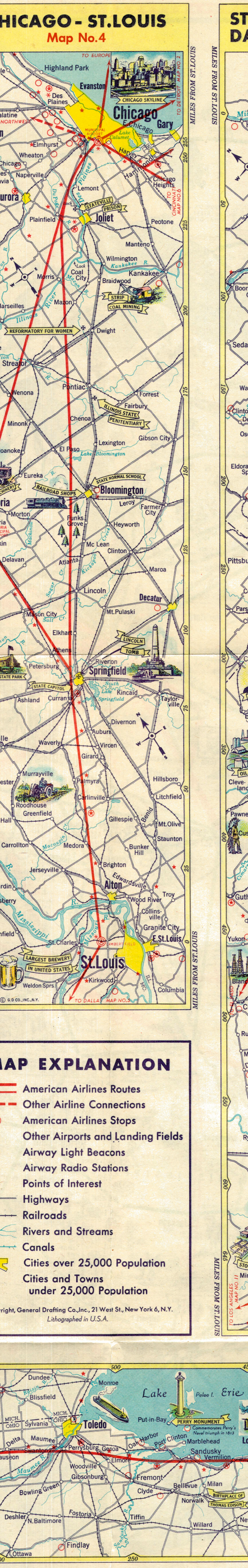
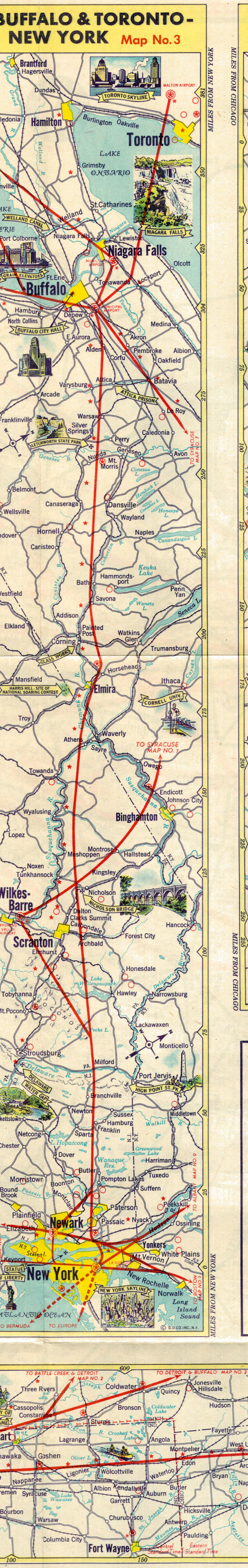
- American Airlines, Inc.
- Other Airlines
- Lines operated in summer only
- Cities and towns served by American Airlines, Inc.
- State Capitals
- 241 Miles between cities
- Figures indicate elevation above sea level at airports
- Time Zone Boundaries
- Scale of Miles: 0 25 50 100 150 200

Prepared for AMERICAN AIRLINES

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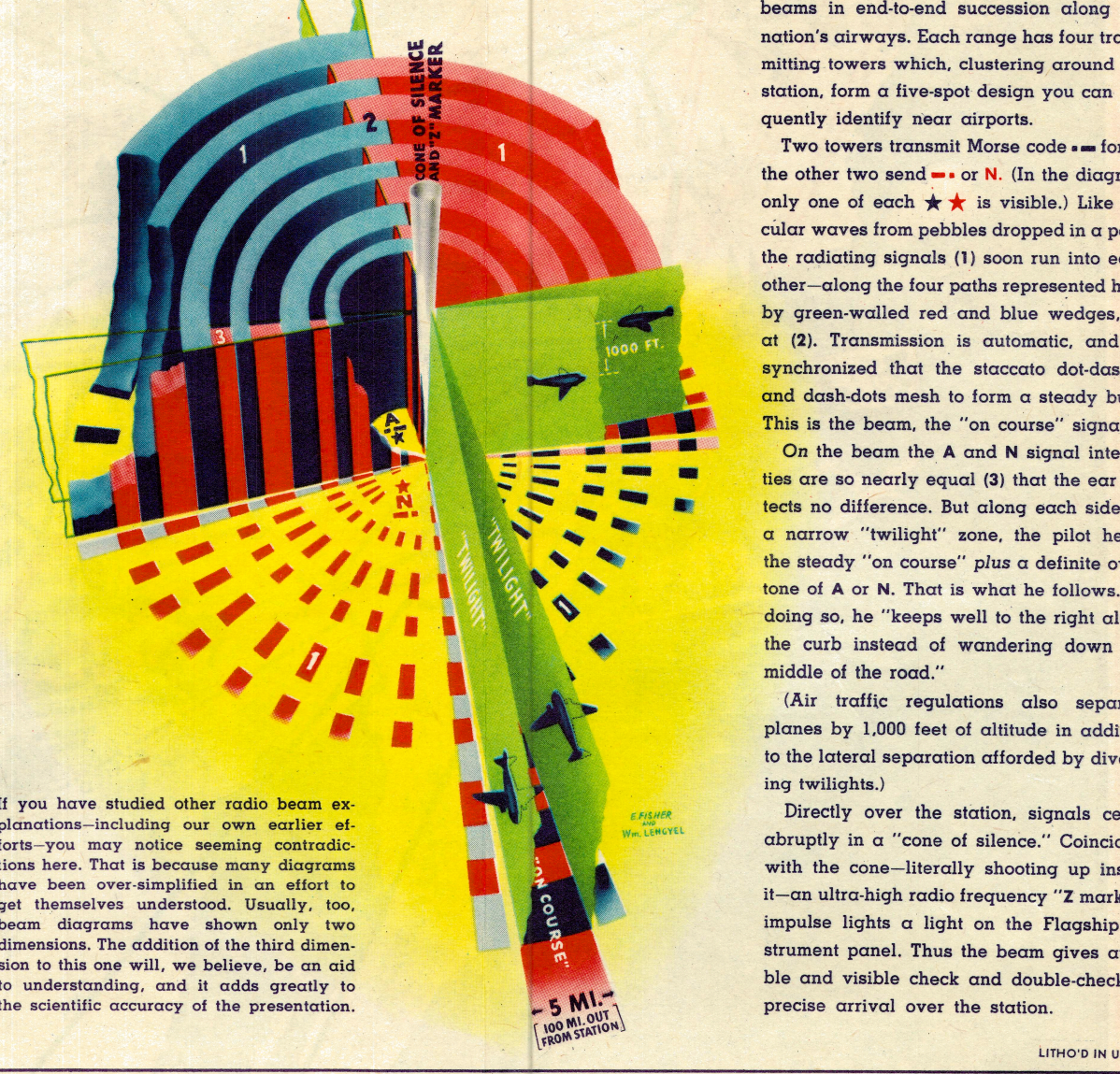
**MAP EXPLANATION**

- American Airlines Routes
- Other Airline Connections
- American Airlines Stops
- Other Airports and Landing Fields
- Airway Light Beacons
- Airway Radio Stations
- Points of Interest
- Highways
- Railroads
- Rivers and Streams
- Canals
- Cities over 25,000 Population
- Cities and Towns under 25,000 Population

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## The Radio BEAM is the HIGHWAY of the Air

IS IT CLOUDY TODAY? Completely overcast? Or night, with no lights showing? And do you wonder how your pilot keeps his course over ground he cannot see? Biggest part of the answer is the radio beam signal he receives through his headphones—an arrow-straight path of sound marking the airway.



Other navigation aids at the captain's command supplement or can substitute, but "the beam" alone is a highway as definite as a road on the ground—and an even better guide because it broadcasts to tell one where it is.

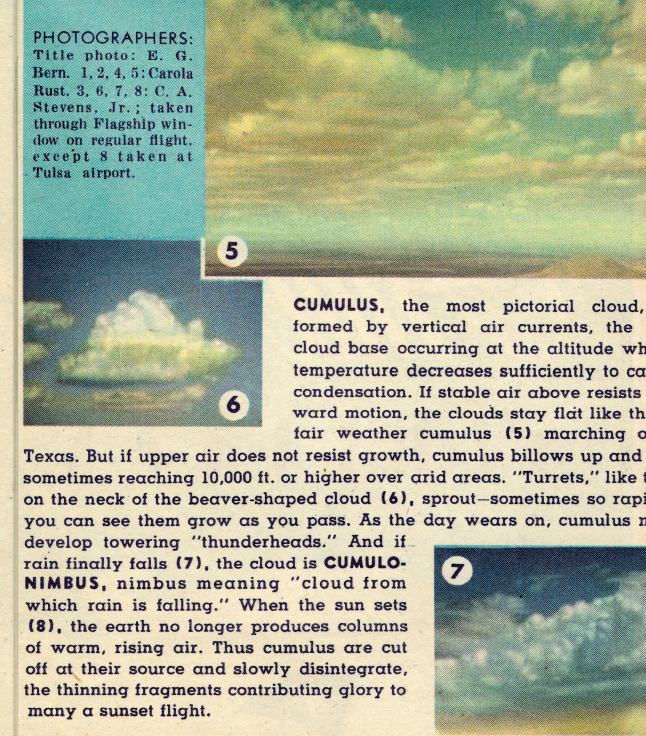
Government-operated radio range stations transmit radio beams in end-to-end succession along the nation's airways. Each range has four transmitting towers which, clustering around the station, form a five-spoke design you can frequently identify near airports.

Two towers transmit Morse code—for A, the other two send — or N. (In the diagram only one of each ★ is visible.) Like circular waves from pebbles dropped in a pool, the radiating signals (1) soon run into each other—along the four paths represented here by green-walled red and blue wedges, as at (2). Transmission is automatic, and so synchronized that the staccato dot-dashes and dash-dots mesh to form a steady buzz. This is the beam, the "on course" signal.

On the beam the A and N signal intensities are so nearly equal (3) that the ear detects no difference. But along each side, in a narrow "twilight" zone, the pilot hears the steady "on course" plus a definite overtone of A or N. That is what he follows. By doing so, he "keeps well to the right along the curb" instead of wandering down the middle of the road.

(Air traffic regulations also separate planes by 1,000 feet of altitude in addition to the lateral separation afforded by diverging laterals.)

Directly over the station, signals cease abruptly in a "cone of silence." Coincident with the cone—literally shooting up inside it—on ultra-high radio frequency "Z marker" impulse lights a light on the Flagship instrument panel. Thus the beam gives audible and visible check and double-check of precise arrival over the station.



PHOTOGRAPHERS: TITLE PHOTO: R. G. BARN; 2, 3, 4, 5: R. G. BARN; 6: R. G. BARN; 7: R. G. BARN; 8: R. G. BARN; 9: R. G. BARN; 10: R. G. BARN; 11: R. G. BARN; 12: R. G. BARN; 13: R. G. BARN; 14: R. G. BARN; 15: R. G. BARN; 16: R. G. BARN; 17: R. G. BARN; 18: R. G. BARN; 19: R. G. BARN; 20: R. G. BARN.

Ten. But if upper air does not meet growth, cumulus billows up and up, sometimes reaching 10,000 ft., or higher over arid areas. "Turrets," like that on the neck of the beaver-shaped cloud (4), sprout—sometimes so rapidly you can see them grow on your nose. As the tower wears on, cumulus may develop towering "hunderheads." And if rain finally falls (7), the cloud is CUMULO-NIMBUS, nimbus meaning "cloud from which rain is falling." When the sun sets (8), the earth no longer produces columns of warm, rising air. Thus cumulus are cut off at their source and slowly disintegrate, the thinning fragments contributing glory to many a sunset light.

Below cirrus—from 8,000 to 30,000 ft.—are the alto forms. ALTO-CUMULUS (2) sometimes forms the regular pattern of a "mackerel sky." In (3) a wedge of alto-cumulus, two horizontal patches of ALTO-STRATUS and a row of cumulus form a typical skyscape in which differing winds above and below the cumulus are "shearing" its tops to the left. Bathed in sunset colors (4) are streaky alto-stratus, fleaky alto-cumulus.

CIRROUS lies highest—30,000 ft. and up—in sub-zero temperatures. Sometimes forming "mare's tails," this cirrus (1) is "brushed." In the thin, almost invisible layers that sometimes cause halos it's called CIRRO-STRATUS; if lightly rolled and fluffy, rare CIRRO-CUMULUS. These high cirrus clouds are formed of ice crystals.

Warm air, cooled and mixed from below, produces stratified clouds in which horizontal patches of alto-cumulus, two horizontal patches of ALTO-STRATUS and a row of cumulus form a typical skyscape in which differing winds above and below the cumulus are "shearing" its tops to the left. Bathed in sunset colors (4) are streaky alto-stratus, fleaky alto-cumulus.

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